

FEATURES

- ◆ Universal input range:85~265V_{AC},100~375V_{DC}
- ◆ Regulated output,low ripple and noise
- ◆ Over-current,short circuit and over-voltage protection
- ◆ Plastic case,meets UL94V-0
- ◆ Meet UL60950,EN60950 standards
- ◆ PCB mounting,Chassis mounting,DIN-Rail mounting
- ◆ Three year warranty

10W,AC-DC CONVERTER



Selection Guide

Certification	Part No.*	Output Power	Nominal Output Voltage and Current		Efficiency (230V _{AC} ,%/Typ.)	Max.Capacitive Load(μF)	
			(Vo1/Io1)	(Vo2/Io2)		Vo1	Vo2
	CFAME10S3V3	6.6 W	3.3V/2000mA	--	70	26400	--
	CFAME10S05		5V/2000mA	--	76	9440	--
	CFAME10S09		9V/1100mA	--	78	3600	--
	CFAME10S12		12V/900mA	--	80	2400	--
	CFAME10S15		15V/700mA	--	81	1170	--
	CFAME10S24		24V/450mA	--	82	370	--
	CFAME10D05		+5V/1000mA	-5V/1000mA	76	8800	8800
	CFAME10D12		+12V/450mA	-12V/450mA	80	1970	1970
	CFAME10D15		+15V/350mA	-15V/350mA	81	1970	1970
	CFAME10D24		+24V/200mA	-24V/200mA	84	660	660
	CFAME10T05M12I		5V/1000mA	±12V/200mA	75	3200	260
	CFAME10T05M15I		5V/900mA	±15V/200mA	75	2160	80
	CFAME10D05M05I		5V/1800mA	5V/200mA	75	8000	540
	CFAME10D05M12I		5V/1500mA	12V/200mA	79	4400	260
	CFAME10D05M15I		5V/1400mA	15V/200mA	79	4400	170
	CFAME10D05M24I		5V/1000mA	24V/200mA	81	4000	170

Note:CFAME10DXX,use both positive and negative output as sampling feedback;and all others use Vo1 as sampling feedback.

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range	AC input	85	--	265	V _{AC}
	DC input	100	--	375	V _{DC}
Input frequency		47	--	63	Hz
Input current	115V _{AC}	--	--	0.26	A
	230V _{AC}	--	--	0.16	
Inrush current	115V _{AC}	--	10	--	
	230V _{AC}	--	20	--	
Leakage current		0.3mA RMStyp./230V _{AC} /50Hz			

Recommended External Input Fuse(Special package series include fuse)		2A/250V,slow fusing
Hot Plug		Unavailable

Output Specifications

Item	Operating Conditions				Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Main circuit				--	±2	--	%
	Main circuit (3.3V Output voltage)				--	±3	--	
Line Regulation	Full load	Main circuit			--	±0.5	--	
		Auxiliary circuit			--	±1.5	--	
Load Regulation	10%-100% load	Single output			--	±1	--	
		Dual output(balanced load)			--	±2	--	
		Isolated triple output (balanced load)	Main circuit		--	±3	--	
			Auxiliary circuit		--	±5	--	
		Isolated and separated twin output (balanced load)	Main circuit		--	±3	--	
			Auxiliary circuit		--	±5	--	
Ripple/Noise*	20MHz bandwidth(peak-peak value)				--	50	150	mV
Temperature Coefficient	Main circuit				--	±0.02	--	%/°C
Short Circuit Protection					Continuous,self-recovery			
Over-current Protection					≥110%Io self-recovery			
Over-voltage Protection	Main circuit	3.3/5Vdc Output			≤7.5Vdc			
		9Vdc Output			≤13Vdc			
		12/15Vdc Output			≤20Vdc			
		24Vdc Output			≤30Vdc			
Min.Load	Single output models				0	--	--	%
	Dual output models (balanced load)				10	--	--	
	Isolated and separated twin output(balanced load)				10	--	--	
	Isolated triple output(balancedload)				10	--	--	
Hold-up Time	115VAc input				--	15	--	ms
	230VAc input				--	80	--	

Note:Note:*Ripple and noise are measured by"parallel cable"method,

General Specifications

Item		Operating Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Input-output	Testtime:1min	3000	--	--	V _{AC}
Operating Temperature		CFAME10D24	-25	--	+55	°C
		Others	-40	--	+70	
Storage Temperature		CFAME10D24	-25	--	+105	
		Others	-40	--	+105	
Storage Humidity			--	--	95	%RH
Welding Temperature		Wave-soldering	+260±5℃;time:5~10s			
		Manual-welding	+360±10℃;time:3~5s			
Switching Frequency		CFAME10D/CFAME10T series	--	65	--	kHz
		CFAME10S series	--	100	--	
Power Derating		-40℃~-25℃	2.0	--	--	%/ ^o ℃
		+55℃~+70℃	4.0	--	--	
Safety Standard		IEC60950/EN60950/UL60950				
Safety Certification		EN60950/UL60950				
Safety Class		CLASSI				
MTBF		MIL-HDBK-217F@25℃>300,000h				

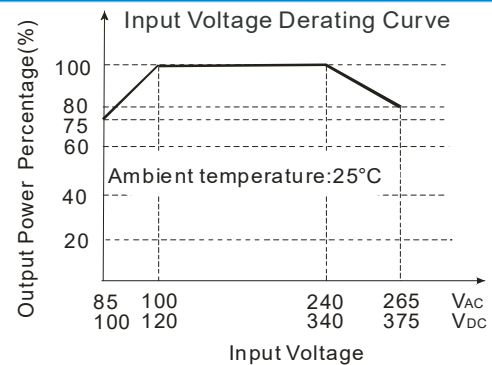
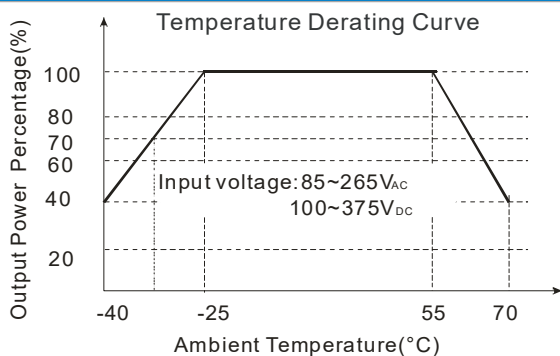
Physical Specifications

Casing Material	Black flame-retardant and heat-resistant plastic(UL94-V0)	
Dimension	Horizontal package	55.0*45.0*21.0mm
	Z1 chassis mounting	96.1*54.0*29.5mm
	Z Din-Rail mounting	96.1*54.0*35.6mm
Weight	Horizontal package/Z2 chassis mounting /Z3 chassis mounting/Z4 Din-Rail mounting	80g/130g/170g(Typ.)
Cooling method*	Free air convection	
Note:*This product is suitable for use in natural air cooling environments,if in a closed environment,		

EMC Specifications

EMI	CE	CISPR22/EN55022, CLASS B	
	RE	CISPR22/EN55022, CLASS B	
EMS	ESD	IEC/EN61000-4-2 $\pm 6\text{KV}/\pm 8\text{KV}$	Perf. Criteria B
	RS	IEC/EN61000-4-3 10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4 $\pm 2\text{KV}$	perf. Criteria B
		IEC/EN61000-4-4 $\pm 4\text{KV}$ (See Fig.5 for recommended circuit)	perf. Criteria B
	Surge	IEC/EN61000-4-5 $\pm 1\text{KV}/\pm 2\text{KV}$	perf. Criteria B
		IEC/EN61000-4-5 $\pm 2\text{KV}/4\text{KV}$ (See Fig.5 for recommended circuit)	perf. Criteria B
EMS	CS	IEC/EN61000-4-6 10Vr.m.s	perf. Criteria A
	PFM	IEC/EN61000-4-8 10A/m	perf. Criteria A
	Immunities of voltage dip, drop and short interruption	IEC/EN61000-4-11 0%-70%	perf. Criteria B

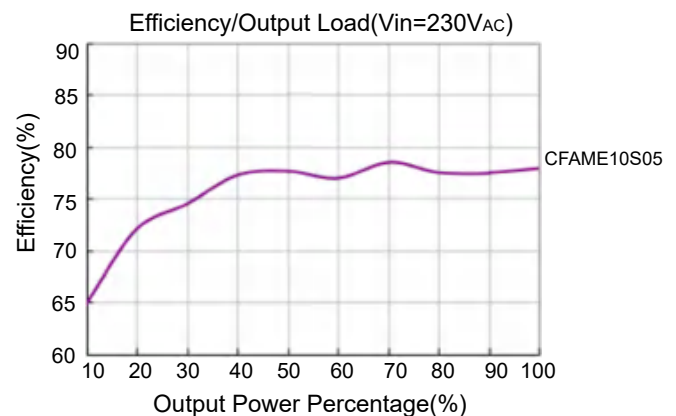
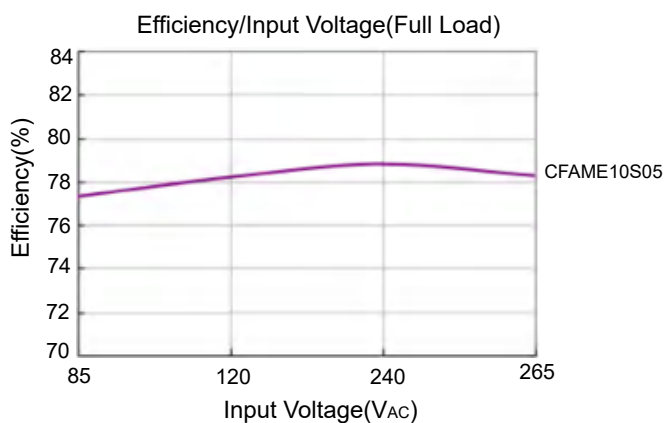
Product Characteristic Curve



Note: ① When input 85~100V_{AC}/240~265V_{AC}/100~120V_{DC}/340~375V_{DC}, it need to be voltage derated on basis of temperature derating;

② CFAME10D24 lowest temperature is -25°C

③ This product is suitable for use in natural air cooling environments, if in a closed environment,



Design Reference

1. Typical application circuit

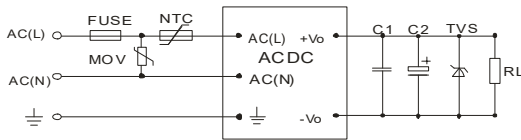


Fig.1:CFAME10S(Single Output)series Typical application circuit

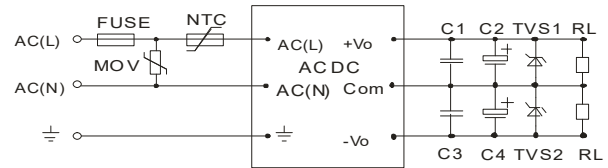


Fig.2:CFAME10D(Dual Output)series typical application circuit

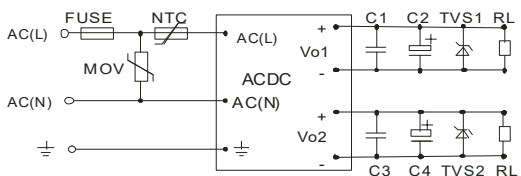


Fig.3:CFAME10DXXI(Isolate Twin Output)series typical application circuit

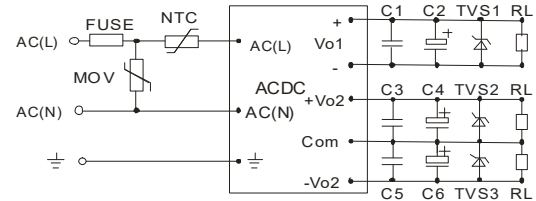


Fig.4:CFAME10T(Triple Output)series typical application circuit

Model	C2(μ F)	C4(μ F)	C6(μ F)	TVS1	TVS2	TVS3
CFAME10S3V3	470			SMBJ7.0A		
CFAME10S05	330			SMBJ7.0A		
CFAME10S09	120			SMBJ12A		
CFAME10S12	120			SMBJ20A		
CFAME10S15	120			SMBJ20A		
CFAME10S24	68			SMBJ30A		
CFAME10D05	220	220		SMBJ7.0A		
CFAME10D12	120	120		SMBJ20A	SMBJ20A	
CFAME10D15	47	47		SMBJ20A	SMBJ20A	
CFAME10D24	33	33		SMBJ30A	SMBJ30A	
CFAME10T05M12I	220	68	68	SMBJ7.0A	SMBJ20A	SMBJ20A
CFAME10T05M15I	220	47	47	SMBJ7.0A	SMBJ20A	SMBJ20A
CFAME10D05M05I	220	68		SMBJ7.0A	SMBJ7.0A	
CFAME10D05M12I	220	68		SMBJ7.0A	SMBJ20A	
CFAME10T05M15I	220	47		SMBJ7.0A	SMBJ20A	
CFAME10T05M24I	220	47		SMBJ7.0A	SMBJ30A	

Note:

Output filtering capacitors C2,C4,C6 are electrolytic capacitors,it is recommended to use high frequency and low impedance electrolytic capacitor. For capacitance and current of capacitor please refer to manufacture's datasheet.Capacitor withstand voltage derating should be 80%or above.C1,C3,C5 are ceramic capacitors,which is used to filter high-frequency noise.TVS is a recommended component to protect post-circuits if converter fails.External input FUSE model is recommended to use 2A/250V slow fusing.External input NTC model is recommended to use 5D-9.External input MOV model is recommended to use S14K300.

2. EMC solution-recommended circuit

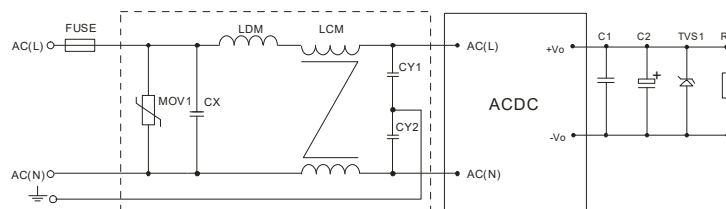
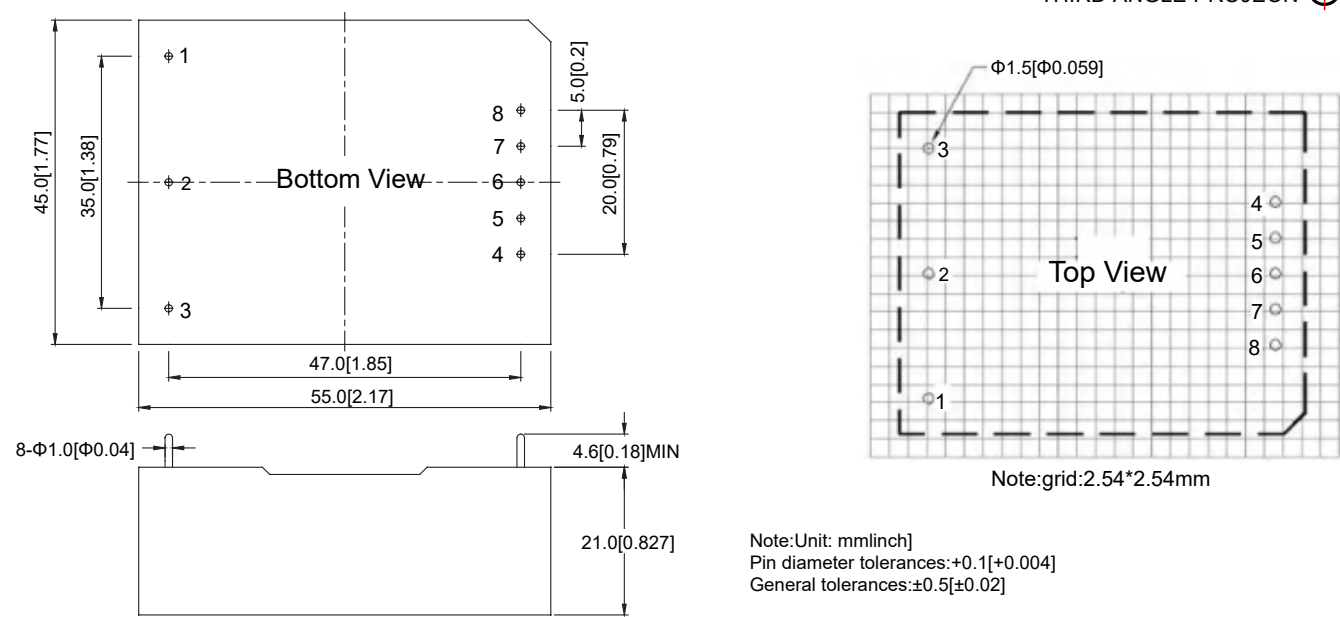


Fig.5:EMC Recommended circuit with higher requirements

Element model	Recommended value	Element model	Recommended value
MOV1	S14K300		2KV/4KV EMC filter
CY1,CY2	1000pF/400VAC	LDM	4.7 μ H/2A
CX	0.1 μ F/275VAC	FUSE	2A/250V slow fusing,necessary
LCM	10mH		

Dimensions and Recommended Layout

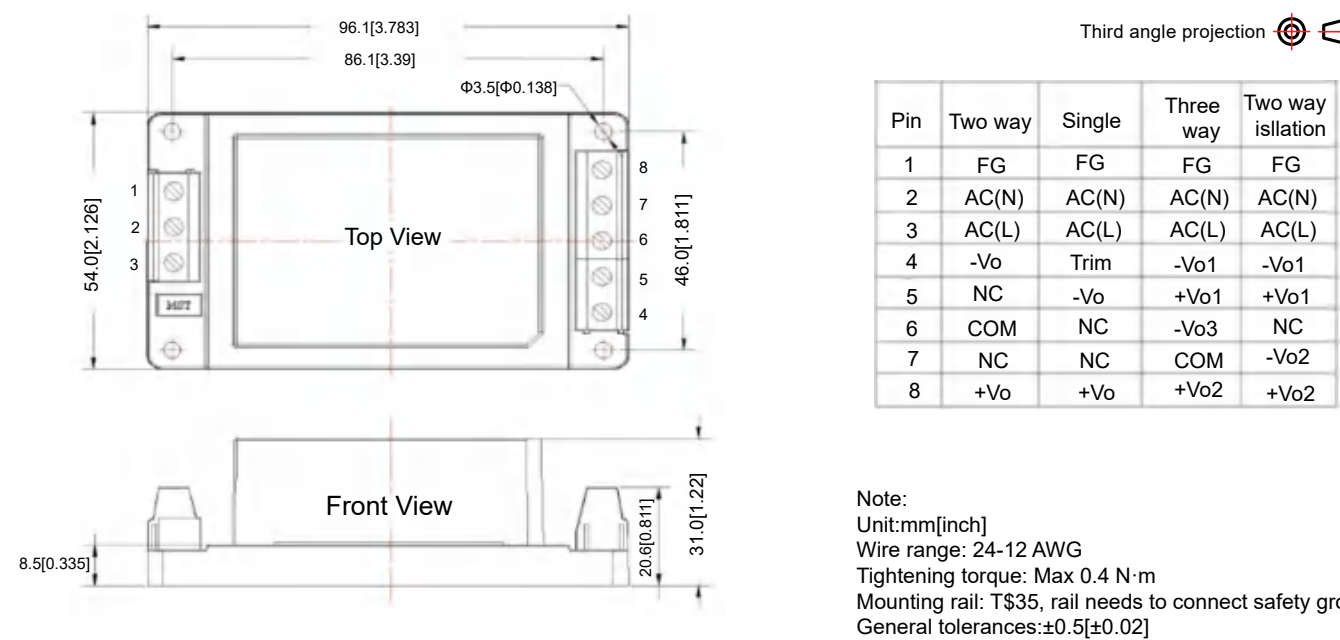
THIRD ANGLE PROJEON 



Pin	1	2	3	4	5	6	7	8
Single	L	N	FG	-Vo	NP	NP	NP	+Vo
Balance load Dual	L	N	FG	-Vo	NP	COM	NP	+Vo
Two-way isolation	L	N	FG	-Vo1	+Vo1	NP	-Vo2	+Vo2
Triple	L	N	FG	-Vo1	+Vo1	-Vo3	COM	+Vo2

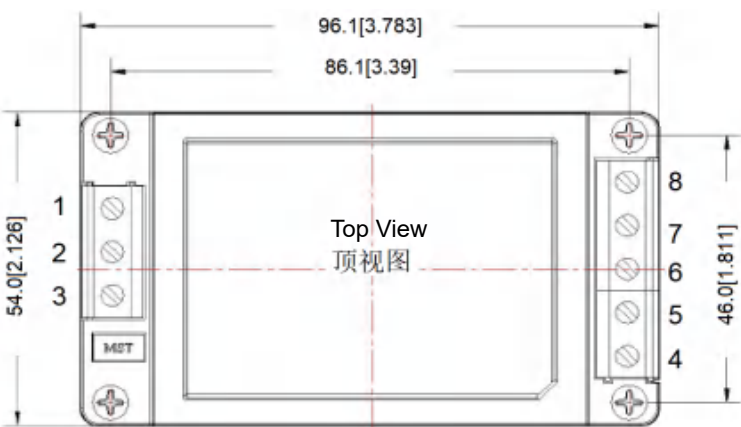
Z1 Dimensions

Third angle projection 



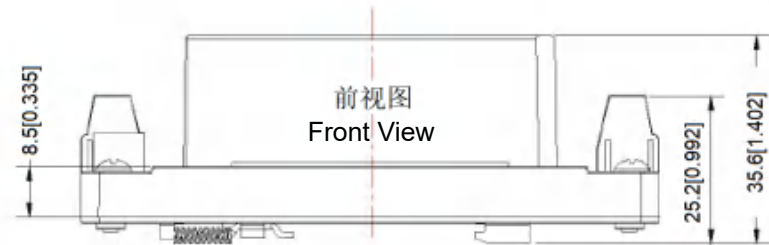
Pin	Two way	Single	Three way	Two way isolation
1	FG	FG	FG	FG
2	AC(N)	AC(N)	AC(N)	AC(N)
3	AC(L)	AC(L)	AC(L)	AC(L)
4	-Vo	Trim	-Vo1	-Vo1
5	NC	-Vo	+Vo1	+Vo1
6	COM	NC	-Vo3	NC
7	NC	NC	COM	-Vo2
8	+Vo	+Vo	+Vo2	+Vo2

Z Dimensions



Third angle projection

Pin	Two way	Single	Three way	Two way isolation
1	FG	FG	FG	FG
2	AC(N)	AC(N)	AC(N)	AC(N)
3	AC(L)	AC(L)	AC(L)	AC(L)
4	-Vo	Trim	-Vo1	-Vo1
5	NC	-Vo	+Vo1	+Vo1
6	COM	NC	-Vo3	NC
7	NC	NC	COM	-Vo2
8	+Vo	+Vo	+Vo2	+Vo2



Note:
Unit:mm[inch]
Wire range: 24-12 AWG
Tightening torque: Max 0.4 N·m
Mounting rail: T\$35, rail needs to connect safety ground
General tolerances:±0.5[±0.02]

Note:

- 1.If the product is not operated within the required load range,the product performance cannot be guaranteed to comply with all parameters in the datasheet;
- 2.Unless otherwise specified,parameters in this datasheet were measured under the conditions of $T_a=25^{\circ}\text{C}$,humidity<75% with nominal input voltage and rated output load;
- 3.All index testing methods in this datasheet are based on our Company's corporate standards;
- 4.The performance parameters of the product models listed in this manual are as above,but some parameters of non-standard model products may exceed the requirements mentioned above.Please contact our technicians directly for specific information;
- 5.We can provide product customization service;
- 6.Specifications are subject to change without prior notice.



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